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1. A method of minimizing oil consumption in a gas turbine engine, by avoiding reliance on air intake into the engine oil circuit for bearing chamber oil sealing purposes, the engine having an oil circuit including:

9           at least one bearing chamber enveloping each said  
10 bearing and maintaining a volume of oil with an oil-air  
11 interface in communication with a volume of air therein;  
12 and

oil circulation means in flow communication with each bearing chamber for supplying a flow of oil to a bearing chamber inlet and for evacuating spent oil from an outlet of the bearing chamber;

17 characterized in that, the method comprises:

18 sealing each bearing chamber with a hydropad seal  
19 disposed in sealing relation between the shaft and bearing  
20 chamber, the hydropad seal comprising an annular ring  
21 mounted to the shaft and an annular pad mounted to the  
22 chamber, the ring and pad having abutting seal surfaces;

23 rotating the ring during engine operation to cast oil  
24 radially outwardly from said shaft axis toward an outer  
25 periphery of the bearing chamber under centrifugal force;

1 collecting oil from the outer periphery of the bearing  
2 chamber and directing oil flow to the bearing chamber  
3 outlet.

4 2. A method according to claim 1 wherein the oil  
5 circulation operates independently of an oil-air separation  
6 function and an air venting function.

7 3. A method according to claim 1 wherein the abutting  
8 sealing surfaces of the hydropad remain engaged in  
9 frictional sealing relation below a lift off rotary speed.

10 4. A method according to claim 3 wherein the abutting  
11 sealing surfaces of the hydropad disengage when rotary  
12 speed exceeds the lift off rotary speed, the ring sealing  
13 surface casting oil outwardly under centrifugal force to  
14 impede oil passage through the hydropad seal.

15 5. A method according to claim 1 wherein cast oil is  
16 collected from the outer periphery of the bearing chamber  
17 using an oil scoop disposed on said periphery.

18 6. A gas turbine engine that reduces air intake into the  
19 engine oil circuit for bearing chamber oil sealing  
20 purposes, the engine having an oil circuit including:

21 at least one bearing supporting at least one engine  
22 shaft at a support point along a shaft axis;

23 at least one bearing chamber enveloping each said  
24 bearing and maintaining a volume of oil with an oil-air  
25 interface in communication with a volume of air therein;  
26 and

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1 oil circulation means in flow communication with each  
2 bearing chamber for supplying a flow of oil to a bearing  
3 chamber inlet and for evacuating spent oil from an outlet  
4 of the bearing chamber;

5 characterized in that, the engine comprises:

6 a hydropad seal disposed in sealing relation between  
7 the shaft and a bearing chamber, the hydropad seal  
8 comprising an annular ring mounted to the shaft and an  
9 annular pad mounted to the chamber, the ring and pad having  
10 abutting seal surfaces;

11 turbine means mounted to the shaft for rotating the  
12 ring during engine operation to cast oil radially outwardly  
13 from said shaft axis toward an outer periphery of the  
14 bearing chamber under centrifugal force; and

15 wherein the oil circulation means includes oil  
16 scavenge means for collecting oil from the outer periphery  
17 of the bearing chamber and directing oil flow to the  
18 bearing chamber outlet.

19 7. An engine according to claim 6 wherein the oil  
20 circulation means operate independently of an oil-air  
21 separation function and an air venting function.

22 8. An engine according to claim 6 wherein the abutting  
23 sealing surfaces of the hydropad remain engaged in  
24 frictional sealing relation below a lift off rotary speed.

25 9. An engine according to claim 8 wherein the abutting  
26 sealing surfaces of the hydropad disengage when rotary

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1 speed exceeds the lift off rotary speed, wherein the ring  
2 sealing surface casts oil outwardly under centrifugal force  
3 to impede oil passage through the hydropad seal.

4 10. An engine according to claim 6 wherein the oil  
5 scavenge means include an oil scoop disposed on the outer  
6 periphery of the bearing chamber.

*Added*

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